Minnesota Pollution Control Agency

March 15, 1982

Mr. Eugene A. Hickok
545 Indian Mound
Wayzata, Minnesota 55391

Dear Mr. Hickok:

Enclosed for your signature is a contract for the investigation of a former Reilly Tar and Chemical Industrial well (W23) and a well survey in St. Louis Park. Pending approval by the Minnesota Pollution Control Agency's (MPCA) Authorized Agent, of which I have been designated, the contract will also include the construction of a test well adjacent to W23, and the investigation of the Sugar Beet well.

If the contract is acceptable to you, please sign and return it to me. If you would like to discuss the contract further, please contact me at 297-2726.

Sincerely,

Richard R. Ferguson

Richard R. Ferguson
Regulatory Compliance Section
Solid and Hazardous Waste Division

RRF/dc
Enclosure

Phone:
1935 West County Road B2, Roseville, Minnesota 55113
Regional Offices · Duluth/Brainerd/Detroit Lakes/Marshall/Rochester

STATE OF MINNESOTA

CONTRACTUAL (non-state employee) SERVICES

☐ ORIGINAL
☐ SUPPLEMENT/ AMENDMENT

CONSULTANT ☐☐ PROFESSIONAL-TECHNICAL ☐☐ PURCHASED ☐☐

Trn. No. Account I.D. Organization F.Y. Requisition No. Vendor Number Type Terms Source S. Act. Task S. Task

Cost, Job or Client Code Amount Suffix Object

SEND

TYPE OF TRANSACTION ☐ A40 ☐ A41 Date Number Entered by

☐ A44 ☐ A45 ☐ A46 Date Number Entered by

THIS CONTRACT, which shall be interpreted pursuant to the laws of the State of Minnesota, between the State of Minnesota, acting through its Minnesota Pollution Control Agency (hereinafter STATE) and Eugene A. Hickok and Associates address 545 Indian Mound Wayzata, Minnesota 55391 Soc. Sec. or Fed. Iden. No. (hereinafter CONTRACTOR), witnesseth that:

WHEREAS, the STATE, pursuant to Minnesota Statutes , Section(s) 116.03, Subd. 2 and 3 is empowered to contract with persons or firms to execute tasks of the Minnesota Pollution Control Agency, and

WHEREAS, the State does not have the expertise or resources necessary to execute the tasks, and

WHEREAS, CONTRACTOR represents that it is duly qualified and willing to perform the services set forth herein,

NOW, THEREFORE, it is agreed:

1. CONTRACTOR'S DUTIES (Attach additional page if necessary). CONTRACTOR, who is not a state employee, shall:

The scope of work for Tasks I.A, B, C and D and Task II is outlined in detail. The Contractor shall not initiate any work on Tasks I.C (sugar beet well) and I.D. (test well) without advance written authorization from the State's Authorized Agent. The State reserves the right in its sole discretion to cancel Tasks I.C and I.D. In the event these tasks are cancelled, no compensation for these tasks, or preparations therefore, shall be due Contractor. In the event the scope of either of these tasks is reduced, payment will be made in accordance with the attached cost schedule (on pages 15-18) only for those services authorized by the State's Authorized Agent. The State will notify the Contractor within ten days of the completion of Tasks I.A and I.B if the Contractor is to initiate work on I.C and I.D.

The outline should serve as a guideline for completing the tasks. The outline is not intended to restrict the ingenuity of the Contractor or Subcontractor. The Contractor should notify the State if a better method is available for executing the tasks without waivering from the intent of the tasks or sacrificing the results.
(continued on page 3)

II. CONSIDERATION AND TERMS OF PAYMENT.

A. Consideration for all services performed and goods or materials supplied by CONTRACTOR pursuant to this contract shall be paid by the STATE as follows:

1. Compensation $196,040 $112,072 of the $196,040 is conditioned upon approval to proceed and approval of work plan, and on the worst case drilling conditions for Task I.C.
2. Reimbursement for travel and subsistence expenses actually and necessarily incurred by CONTRACTOR performance of this contract in an amount not to exceed -0- dollars ($); provided, that CONTRACTOR shall be reimbursed for travel and subsistence expenses in the same amount and manner as state officers and employees are reimbursed pursuant to the travel regulations promulgated by the Commissioner of Personnel. CONTRACTOR shall not be reimbursed for travel and subsistence expenses incurred outside the State of Minnesota unless it has received prior written approval for such out of state travel from the STATE.

The total obligation of the STATE for all compensation and reimbursements to CONTRACTOR shall not exceed $196,040 dollars ($).

B. Terms of Payment

1. Payments shall be made by the STATE promptly after CONTRACTOR'S presentation of invoices for services performed and acceptance of such services by the STATE'S authorized agent pursuant to Clause VI. Invoices shall be submitted in a form prescribed by the STATE and according to the following schedule:

The Contractor shall submit a work schedule, including all subcontracted work,

III. CONDITIONS OF PAYMENT. All services provided by CONTRACTOR pursuant to this contract shall be performed to the satisfaction of the STATE, as determined in the sole discretion of its authorized agent, and in accord with all applicable federal, state and local laws, ordinances, rules and regulations. CONTRACTOR shall not receive payment for work found by the STATE to be unsatisfactory, or performed in violation of federal, state or local law, ordinance, rule or regulation.

IV. TERM OF CONTRACT. This contract shall be effective on March 15, 19 82, or upon such date as it is executed as to encumbrance by the Commissioner of Finance, whichever occurs later, and shall remain in effect until June 15, 19 82, or until all obligations set forth in this contract have been satisfactorily fulfilled, whichever occurs first.

V. CANCELLATION. This contract may be cancelled by the STATE or CONTRACTOR at any time, with or without cause, upon thirty (30) days' written notice to the other party. In the event of such a cancellation CONTRACTOR shall be entitled to payment, determined on a pro rata basis, for work or services satisfactorily performed.

VI. STATE'S AUTHORIZED AGENT. The STATE'S authorized agent for the purposes of administration of this contract is Richard R. Ferguson. Such agent shall have final authority for acceptance of CONTRACTOR'S services and if such services are accepted as satisfactory, shall so certify on each invoice submitted pursuant to Clause II, paragraph B.

VII. ASSIGNMENT. CONTRACTOR shall neither assign nor transfer any rights or obligations under this contract without the prior written consent of the STATE.

VIII. AMENDMENTS. Any amendments to this contract shall be in writing.

IX. LIABILITY. CONTRACTOR agrees to indemnify and save and hold the STATE, its agents and employees harmless from any and all claims or causes of action arising from the performance of this contract by CONTRACTOR or CONTRACTOR'S agents or employees. This clause shall not be construed to bar any legal remedies CONTRACTOR may have for the STATE'S failure to fulfill its obligations pursuant to this contract.

X. STATE AUDITS. The books, records, documents, and accounting procedures, and practices of the consultant relevant to this contract shall be subject to examination by the contracting department and the legislative auditor.

XI. OWNERSHIP OF DOCUMENTS. Any reports, studies, photographs, negatives, or other documents prepared by CONTRACTOR in the performance of its obligations under this contract shall be the exclusive property of the STATE and all such materials shall be remitted to the STATE by CONTRACTOR upon completion, termination or cancellation of this contract. CONTRACTOR shall not use, willingly allow or cause to have such materials used for any purpose other than performance of CONTRACTOR'S obligations under this contract without the prior written consent of the STATE.

XII. OTHER PROVISIONS. (Attach additional page if necessary):

A. The Contractor shall hold all information provided by the State as confidential and no such information shall be used for purposes other than those specified in this contract.

B. The Contractor shall obtain prior approval from the State project officer prior to the release of any documents or the making of any communication to any other parties or the public relative to work under this contract.

C. The Contractor will submit to the State three copies of all reports. For the final report 15 copies will be submitted with one being a camera-ready copy.

(continued on page 14)

IN WITNESS WHEREOF, the parties have caused this contract to be duly executed intending to be bound thereby.

APPROVED:

(1) CONTRACTOR:
(If a corporation, two corporate officers must execute.)

By: _____

Title: _____

Date: _____

By: _____

Title: _____

Date: _____

(2) STATE AGENCY OR DEPARTMENT:

As to form and execution by the
(3) ATTORNEY GENERAL:

By: _____

Date: _____

COMMISSIONER OF ADMINISTRATION:

(4) By: _____
Authorized Signature

Date: _____

(5) COMMISSIONER OF FINANCE:

ENCUMBERED
DEPARTMENT OF FINANCE

I. Contractor's Duties Continued.

The State shall also be notified if a modification in the work scope is needed during the course of the project. The participation of the United States Geological Survey (hereinafter "USGS") in this project is voluntary, and failure of the USGS to perform any work listed herein shall not impose additional responsibilities on the State and Contractor, nor relieve State or Contractor of any responsibilities under this contract.

Upon acceptance of the contract, the Contractor shall prepare, for approval, a detailed work plan and description of the tasks to be completed along with a time schedule.

Task I.A. Investigation of Former Republic Creosote Supply Well (USGS Well W23).

The supply well for the former Republic Creosote facility was originally drilled to a depth of 909 feet, penetrating the bedrock sequence from the Platteville Limestone to the Mt. Simon Sandstone. The geologic log and casing schedule is as follows:

Geologic Unit	Interval (feet)	Casing Scheduled	Interval (feet)
Quaternary Deposits	0-60	12"	0-65
Platteville Limestone	60-95	10"	0-257
St. Peter Sandstone	95-195		
St. Peter Sandstone (basal)	195-258	7"	230-406
Prairie du Chien Dolomites	258-372	4" (packer)	0-400
Jordan Sandstone	372-457	(packer is placed in basal	
St. Lawrence Dolomite	457-507	St. Peter Sandstone -	
Franconia Sandstone	507-650	250 feet deep)	
Ironton-Galesville Sandstone	650-715		
Eau Claire Shale	715-840		
Mt. Simon Sandstone	840-909		

The well bore is filled with debris to a depth of 595 feet. A plug of coal-tar (at least one foot thick) is found at this depth. The nature of the fill below the coal-tar plug is not known. Coal-tar is present on the surface of the 7" casing.

A packer is installed within the 7" casing at the bottom of the St. Peter Sandstone (approximately 250 feet). The packer is designed to minimize down-hole flow in the well bore from holes in the casing in the upper intervals of the St. Peter Sandstone to the Prairie du Chien Dolomite. The description of this well is based upon best available information -- a television log of the well and a USGS geophysical log of the well (1978).

Prior to and subsequent to any drilling in W23, the integrity of the packer should be hydraulically tested by pumping on the Prairie du Chien and monitoring for draw-down in the St. Peter.

The following procedures are intended as a guide.

1) Install grout plug on top of coal-tar by pumping neat cement through approximately 590 feet of "BW" wire line rod (O.D. = 2 1/8" I.D. = 1 3/4"

I. Contractor's Duties Continued.

Task I.A. Investigation of Former Republic Creosote Supply Well (USGS Well W23) Continued.

2) Install approximately 590 feet of NW casing (O.D. - 3 1/2", I.D. = 3") fitted with a flush carbide tipped shoe. Note that the NW casing may not have adequate strength to hang together and may have to be substituted with a stronger casing. The welding holding the 4 inch casing to the 10 inch casing should be inspected and reinforced if necessary prior to setting NW casing. Advance NW casing into grout plug by rotation. The casing should be advanced into the grout plug far enough to obtain a satisfactory seal. This will depend on the consistency of the grout set. Because the casing will advance without circulating fluid, the bit will heat up and distort if advanced too far into the grout. This should be avoided because if it is damaged excessively, and subsequent tools do not pass through it, the entire string will have to be removed, and the bit replaced.

3) Reinstall previously made-up BW rod. The bit should be durable enough to cut the grout, and possible bedrock formations but not gum-up with coal-tar.

4) Core through grout plug using BW wire line and obtain samples of tar and fill material to a depth 10 feet below the bottom of the well bore.

5) If the bit plugs or the wire line coring method is unusable to obtain samples, remove BW rod, and replace bit with blank and reinstall rod. Obtain samples by split spoon, shelby type or suitable sampling tool. If it is necessary to obtain samples with a split spoon, it likely will be necessary to alternate sampling with drilling using a tricone bit. This will be time consuming because numerous round trips will be required. It may be possible to use the BW rod for split spoon sampling, although this is not recommended. The advantages of using a smaller amount of equipment (BW rod) would not outweigh the disadvantages of the additional time needed to breakdown and make-up the BW rod, its greater fragility and the likelihood of material sloughing into the open hole below the grout plug.

6) After the hole has been drilled to the required depth, ten feet beyond the original depth, the hole should be geophysically logged. The Contractor will consult with the USGS on this activity.

7) If the coal-tar is found to be thin and is completely penetrated, it may prove practical to wash out a portion of the fill by circulating water down the BW rod and up the inside of the NW casing. Inject grout through the BW rod, below the tar and into the hole through the fill and then above the original plug. The NW casing should be lifted slightly to permit the grout to flow out on top of the original plug.

8) Remove BW rod. Coal-tar from the bottom of the well will likely adhere to the portion of the NW rod.

9) Remove NW casing.

I. Contractor's Duties Continued.

Task I.A. Investigation of Former Republic Creosote Supply Well (USGS Well W23) Continued.

10) Inspect with down-hole television (requires a four inch diameter clearance).

11) Place pump inside 4 inch casing and sample Prairie du Chien. The sample should be analyzed similarly to those samples taken at the test well.

12) A log of the cores will be maintained in the field and prepared in the lab. The samples will be preserved for analysis under frozen conditions. Up to 15 cores will be selected for analysis in consultation with the State.

13) If core recovery is unsuccessful and rotary drilling methods are used to investigate the well, a log will be maintained and samples will be taken at 50 foot intervals beginning at a depth of 600 feet (up to 12 samples). The sampling schedule will be modified if coal-tar is encountered. The samples shall be stored in glass jars rinsed in methylene chloride, and frozen.

14) The presence of visible contamination or odor should be noted in the log.

15) Samples will be analyzed by the Contractor for napthalene, polynuclear aromatic hydrocarbons, phenolics, and total organic carbons.

16) Based upon the findings of the investigation, fill and ground water analyses, and MDH survey, the Contractor will prepare plans and specifications for abandonment and reconstruction as a monitoring well, in consultation with the State.

Task I.B. Disposal of Hazardous Waste.

Coal-tar is regarded as hazardous waste by the State and shall be treated in accordance with all provisions in the Minnesota Pollution Control Agency rules on hazardous waste (6 MCAR 4.9001-4.9010) and the Environmental Protection Agency rules on hazardous waste. Coal-tar does exist in Well W23 from 595 to 597 feet and may likely occur, at least partly, to the original borehole depth. Coal-tar may also be present in Well W105, as this well may have been used for waste disposal by the Republic Creosote plant.

The Contractor shall conduct the following activities:

1) Hazardous waste recovered in well cleaning operations shall be collected in containers provided by the Contractors and stored in a secure or locked facility off the site or within a secured cyclone fence (6 feet high) enclosure on the site.

2) Hazardous waste containers and tanks shall be of sturdy, leak-proof construction. Containers shall be of adequate wall thickness, of adequate weld, hinge, and seam strength and of sufficient material strength to withstand side and bottom shock, while filled, without impairment of the ability of the container or tank to fully contain the hazardous waste.

I. Contractor's Duties Continued.

Task I.B. Disposal of Hazardous Waste Continued.

3) Lids, caps, hinges, or other closure devices shall be sufficient strength and construction so that when closed, they will withstand dropping, overturning, or other shock without impairment of the container's or tank's ability to fully contain the hazardous waste. Gasketed closures shall be fitted with gaskets of material that is sufficient to prevent leakage and that will not be deteriorated by the contents.

4) Corroded or damaged containers or tanks shall not be used to contain hazardous wastes.

5) Containers and portable tanks of hazardous waste shall be suitable for interstate transportation.

6) Hazardous waste shall not be stored in containers or tanks for more than 90 days. All wastes shall be disposed of by the completion date of the contract.

7) The Contractor shall regularly inspect all containers and tanks to determine if any leaks have occurred and in the event a leak has occurred, take necessary action pursuant to subparagraph 1.c. of the hazardous waste rules.

8) The Contractor shall stack containers with a capacity of less than 45 gallons in rows no more than 30 feet in length, five feet in width, and six feet in height, unless otherwise stated in the Hazardous Waste Facility Permit.

9) The Contractor shall prepare procedures for personnel to follow in the case of spills of hazardous waste and in the case of fire and other emergencies. The Contractor shall post these procedures in a conspicuous place at the facility site. (A hazardous waste facility is real or personal property that is used or is constructed to be used for the management of hazardous waste.)

10) The Contractor shall have safety equipment available at the facility site for use during spills, fires, and other emergencies.

11) The Contractor shall obtain authorization for disposal of the wastes at an approved landfill, direct authorized shipment of wastes and secure final authorized disposal.

Task I.C. Investigation and Clean-up of the Former Minnesota Sugar Beet Company Well (USGS Well #105).

The well is located on the former Republic Creosote site, northwest of the intersection of Louisiana Avenue and Walker Street. The log of this well, drilled by Swenson Well Drilling in 1899, is as follows:

Geologic Unit	Interval (feet)	Thickness (feet)
Quarternary Drift	0-73	73
Platteville Limestone	73-93	20
St. Peter Sandstone	93-260	167
Prairie du Chien Dolomites	260-385	125
Jordan Sandstone	385-504	119
St. Lawrence Shale	504-554	50
Franconia Sandstone --		

I. Contractor's Duties Continued.

Task I.C. Investigation and Clean-up of the Former Minnesota Sugar Beet Company Well (USGS Well #105) Continued.

There is no information available on the casing schedule or hole diameters, so it may possibly be open-hole from the Platteville Limestone.

The Contractor shall conduct the following activities:

1) The debris in the well shall be cored, logged and sampled according to the procedures outlined for task I.A. If after 200 feet of coring no contamination is evident, the State may advise the driller to continue the investigation using rotary methods. Sampling will then proceed according to the directions in task I.A. in which rotary methods were used. Up to 20 samples may be analyzed. The Contractor may be directed to clean out the well.

2) If the well is cleaned, the MDH will conduct a down-hole camer survey of the well and a packer line will be installed by the Contractor. Packers shall be placed in the basal St. Peter Sandstone interval, in the St. Lawrence Dolomite interval, and the Eau Claire Shale interval and water samples obtained from above and below the packers and analyzed for polynuclear aromatic hydrocarbons, phenolics, naphthalene, benzene, total organic carbon, and dissolved organic carbon.

All chemical analyses for tasks A, C, and D will be conducted by a staff approved laboratory according to Environmental Protection Agency protocol except where modified by State.

Task I.D. Recovery of Core of the Prairie du Chien-Jordan Formations and Construction of a Test Well (W300) Adjacent to Well W23.

At a location to be designated by the State, approximately 50 feet from Well W23, the Contractor shall obtaina rock core (2 1/2" - 3 3/8" diameter) of the Prairie du Chien-Jordan sequence and complete the borehole as a Prairie du Chien well. Organic drilling fluid should not be used during the construction of this well. The Contractor shall recover the core and drill the well as follows:

1) The drift deposits will be sampled continuously using a brass lined split spoon sampler. The samples will be wrapped in foil, shiny side out and frozen in the field. The samples will be extruded in the lab, placed in glass jars and frozen. A log should be prepared in the field and lab. The selection of samples for analysis will be made in consultation with the State.

2) A 16-inch steel casing shall be installed and grouted through the Quaternary deposits (estimated thickness of 70 feet) and seated into the top of the Platteville Limestone.

3) A 10-inch steel casing shall be installed and grouted through the Quarternary deposits, Platteville Limestone, and into the Glenwood Shale.

I. Contractor's Duties Continued.

Task I.D. Recovery of Core of the Prairie du Chien-Jordan Formations and Construction of a Test Well (W300) Adjacent to Well W23 Continued.

4) A 5-inch casing shall be installed and grouted through the above formations and the St. Peter Sandstone to the top of the Prairie du Chien Dolomite (estimated depth of 260 feet).

5) A complete core of the entire Prairie du Chien-Jordan sequence shall be recovered (approximate depths of 260 feet to 460 feet). It may be possible to use a casing of 14 by 8 by 4 and a wire line with a 3 3/4 O.D. size PQ, if an adequate capacity pump can be installed in the well. The coring requirements are as follows:

a) A double-tube core barrel with a diamond bit and reaming shell or wireline shall be used for rock core recovery.

b) The core driller shall control the speed of the coring, fluid pressures, and core length to maximize core recovery.

c) Grinding of core samples and blockage of core barrels must be avoided. If blockage occurs, the core barrel shall be removed and the core recovered.

d) Care shall be taken to recover intact cores from soft, fractured or cavernous rock. This will require the core barrel to be opened horizontally and the core carefully removed to minimize disturbance.

e) The core driller shall note zones of water loss, rate changes in core barrel advance, estimates of fracture or cavern width, or any other changes in coring activity that will supplement the core information.

f) A geologic description shall be prepared for the cores. Special attention should be given to fractures or voids which should be identified and characterized. Coal-tar should be visually looked for and its presence noted in the log.

g) Fractures, voids, and caverns and their estimated widths shall be clearly indicated on the recovered cores.

h) The cores should be wrapped in foil, shiny side out, and stored in a freezer, in an orderly fashion. Upon request, portions of the Jordan cores will not be frozen and will be available to the USGS for analysis. The USGS has expressed interest in measurements of; mineralogy including naturally occurring organic carbon, particle size, surface area measurements, and effective porosity.

i) The Contractor shall classify the cores geologically, measure recovery percentages, place the cores in boxes, and note the core orientation, depth interval and percent recovery on each box.

j) The cores shall be secured and protected to prevent damage during transfer.

I. Contractor's Duties Continued.

Task I.C. Recovery of Core of the Prairie du Chien-Jordan Formations and Construction of a Test Well (W300) Adjacent to Well W23 Continued.

k) The cores of the Jordan Sandstone shall be analyzed by the Contractor for napthalene, polynuclear aromatic hydrocarbons, phenolics, and total organic carbon at 10-foot intervals or other sections selected by the State (nine samples). Any visibly contaminated sections within the Prairie du Chien, as selected by the State, shall be analyzed by the Contractor for the same parameters (up to 10 samples).

6) Upon completion of coring activities the Jordan Sandstone will be pumped for 24 hours at 50 gpm and sampled four times at eight hour intervals using USGS packers, if available. Following the pumping, the borehole in the Jordan Sandstone (approximately 370 feet 460 feet) shall be sealed with neat cement to the bottom of the Prairie du Chien Dolomites.

7) A pump test of the test well at a rate prescribed by the State (approximately 50 gpm) shall be conducted and four samples of Prairie du Chien ground water shall be collected. During the pump test, the piezometric surface of the Prairie du Chien will be monitored at the relief well and the St. Peter and Prairie du Chien monitored at W23. Time draw-down curves will be collected and used by the USGS to determine values of Transmissivity and Storage Coefficient. These four samples shall be analyzed by the Contractor using State-approved analytical methods (Federal Register Method Number 610) for polynuclear aromatic hydrocarbons, phenolics, naphthalene, benzene, and total organic carbon.

8) A permanent submersible pump, with a capacity of 50 gpm, and a discharge line shall be installed, with a line established to the sanitary sewer. Water levels should be available for monitoring during pump operation. A permanent electrical hook-up shall be installed.

9) The well shall be constructed in compliance with the Minnesota Water Well Construction Code.

10) Plans and specifications shall be prepared for permanent well abandonment and for use as a monitoring well.

11) Modifications in the drilling and coring procedures may be necessary if unsuspected conditions are encountered. Any modifications must be reviewed and approved by the State.

Task II. Search, Inventory, and Abandonment Specifications of Wells in the St. Louis Park Area

A. Search and Inventory: The primary goal of this survey is to locate and obtain information on multi-aquifer wells where contaminated ground water is moving from an aquifer of higher hydraulic head to one of lower head. The multi-aquifer wells of greatest concern are those open to the Platteville and Prairie du Chien where the Platteville is contaminated. The greater the contamination and flow down the well bore, the higher the priority for reconstructing or abandoning the well. Therefore, there should be a greater effort to locate wells in the vicinity of Highway 7 and Louisiana Avenue and east to France Avenue.

I. Contractor's Duties Continued.

Task II. Search, Inventory, and Abandonment Specifications of Wells in the St. Louis Park Area Continued.

The Contractor shall keep thorough records defining the scope and intensity of the survey for use in upcoming well abandonment programs. The following approach should be used as a guideline to conducting the survey. The Contractor shall review the guidelines and make recommendations to improve the efficiency of the survey and the completeness of the data collected. The guidelines are as follows:

Door-to-Door Survey: This search will be conducted in the area bounded by west 28th Street on the north, France Avenue on the east, West 40th Street and Excelsior Boulevard on the south, and Virginia Avenue on the west. The door-to-door survey will involve contacting owners or occupants of all homes and commercial/industrial facilities within the search area, asking the contacted individuals if they are aware of any wells that exist or may have existed on their property or in the area. Information obtained from the file search may allow the investigator to confidently eliminate some of the homes and businesses within the door-to-door survey without a trip to the field. The Contractor shall prepare a questionnaire, which must be approved by the State. If the initial contact is not made, the Contractor shall attempt to directly contact the individuals at least two more times. Comments by individuals may necessitate follow-up discussions with local well drillers (primarily E. H. Renner & Sons, Inc.; McCarthy Well Co.; Tri-State Drilling Co.) and checks of St. Louis Park and Hopkins records (property files, building permits, water supply records) to better document the information. The Contractor shall record all responses and follow-up site visits shall be conducted on all positive responses. The questionnaires and all information shall be submitted to the State. This survey and all information gathered will be in accordance with Minnesota Government Data Practices Act Minnesota Statutes 15.1611, et. seq.

File Search: This search will be conducted in the remaining areas of St. Louis Park, Hopkins east of Highway 18 and the area of Edina north of Interlachen Boulevard and West 50th Street. This search will involve an examination of Edina, Hopkins, and St. Louis Park records (property files, building permits, water supply records) from the date first available; State and Federal agency records (primarily U.S. Geological Survey, Minnesota Department of Natural Resources, Minnesota Geological Survey, Minnesota Department of Health, and Minnesota Historical Society); and contacting local well drillers (primarily E. H. Renner & Sons,Inc.; McCarthy Well Co.; Tri-State Drilling Co.) and City engineers for references to any wells to assist in locating or describing active and inactive wells.

The results of the searches will be compiled into an inventory of located active wells, located inactive wells, and suspected inactive wells. Suspected inactive wells are wells that have not been located and are reported to exist based on the survey and file search. This inventory will contain the following information (if available):

I. Contractor's Duties Continued.

Task II. Search, Inventory, and Abandonment Specifications of Wells in the St. Louis Park Area Continued.

1) Location of Well
- actual field location based on visual observation (include polaroid photo)
- field location based on documented evidence (blueprints, insurance maps, etc.)
- field location based on an individual's accounts or recollections

2) Well Construction
- depth, casing and hole diameters, pumping capacities
- driller, date drilled, modifications and/or repairs
- present and previous owners, well use, history of use

3) Well Condition
- active or inactive well, water use data
- integrity of near-surface casing
- presence of debris in the well
- why well was abandoned

4) Geologic Log

5) Water Level in Well

6) Sources of Information on Well
- agency files (agency, program file)
- city records (city department, program, file)
- driller contacts (provide name, address, phone)
- citizen contacts (provide name, address, phone)
- other

This search and inventory compilation will expand on the inventory of wells compiled by the U.S. Geological Survey in 1978, primarily dealing with wells in the area included in the door-to-door survey.

B. Plan and Estimate of Costs for Abandonment of Wells

The utility of the survey will be the identification and location of multi-aquifer wells providing a pathway for contaminated ground water to enter the Prairie du Chien-Jordan or Mt. Simon-Hinkley aquifers. Using the criteria(*) to evaluate the information gathered in the well search and inventory compilation, the Contractor shall develop a comprehensive well abandonment program which includes:

*The criteria for identifying important wells are depth and diameter (multi-aquifer wells), aquifers penetrated (i.e., Mt. Simon-Hinckley, Prairie du Chien-Jordan), type of construction (i.e., grouted versus ungrouted), proximity to areas of heavy contamination and roximit

I. Contractor's Duties Continued.

Task II. Search, Inventory, and Abandonment Specifications of Wells in the St. Louis Park Area Continued.

- identification of important wells that should be further searched and located, assessed, and properly abandoned/ reconverted
- cost estimates for cleaning identified wells to original depth
- cost estimates for proper abandonment of identified wells, as outlined in 7 MCAR 1,218.c. of the Water Well Construction Code
- cost estimates of reconverting the wells to a single aquifer monitoring well
- cost estimates of obtaining alternative water supplies for active wells (i.e., reconstructed well, municipal hook-up)

Output: A report shall be prepared, detailing the success of the search procedures, summarizing the number of homes and commercial/industrial facilities actually contacted, compiling the inventory of known or suspected wells, documentation gathered on these wells, copies of any testimony of individuals regarding the wells (interviewer identified, individual contacted, date interviewed), and specifications for abandonment of important wells. Copies of all questionnaires and interviews shall be submitted to the State.

Interaction with State and City for Tasks I. and II.

The Consultant shall weekly notify the State verbally of activity progress so that the State may plan to be available for on-site inspection and/or make decisions. The Consultant shall meet with the State and City the first Tuesday of each month. Monthly progress reports shall be prepared and submitted to the State and City three days prior to each meeting. The progress reports will highlight the activities of the previous month, project work for the following month, highlight programs encountered and the solutions implemented (including impacts on the work statement or expected costs), summarize expenditures, and provide a revised schedule. Copies of the progress reports should be distributed to the following individuals:

Jim Pankanin - U.S. EPA, Region V
Richard Bartelt - U.S. EPA, Region V
Lovell Richie - MPCA
Richard Ferguson - MPCA
Stephen Shakman - Attorney General, MPCA
Gary Englund - MDH
Richard Koppy - St. Louis Park

Upon completion of the entire project, the Contractor will submit a draft report to the above individuals for a review period of three weeks. The Consultant will take the comments into consideration and submit a final technical report. This will include a description of the completed tasks, a summary of problems encountered for the various tasks, detailed reports called for in the specific task descriptions, and the proposed plans and specifications for cleanup, abandonment, and reconstruction of W23, W105, and wells identified in the survey. The proposed plans and specifications will also include a

I. Contractor's Duties Continued.

Task II. Search, Inventory, and Abandonment Specifications of Wells in the St. Louis Park Area Continued.

comparison of the effectiveness of various alternatives (permanent abandonment, reconstruction, no action, etc.), assessment of environmental impacts of taking such action, and assessment of methods for mitigating adverse impacts.

II. Consideration and Terms of Payment.

B. Terms of Payment Continued.

1. Continued.

period of time. The statements shall list the number of hours worked in each category according to the rate schedule below and an Agency approved subcontractor's rate schedule. The Contractor shall also submit monthly invoices within ten days of the following month for the purpose of payment. Payment will be made within thirty days of the invoice with exception of the first invoicing which will require additional time to initiate the method of processing. The final payment will not be made to the Contractor until the MPCA's Authorized Agent and Federal OSC have signed-off that the work set forth in Contractor's Duties of this contract has been completed to their satisfaction.

The MPCA and Contractor recognize the uncertainty of conditions in and around the wells. In the event that the Contractor, in the course of its work, encounters conditions not anticipated at the time of this contract, it shall notify as soon as practicable the MPCA's Authorized Agent of such conditions and of any resulting changes in the costs to Contractor of completing the tasks under this contract. Contractor and State shall discuss at the earliest opportunity any amendments to this contract relating to the newly discovered conditions. The MPCA will promptly respond to any requests for amendment to this contract. The Contractor shall promptly notify the MPCA Executive Director in advance if drilling costs are anticipated to exceed the attached cost estimates on pages 15-18. Upon approval, an amendment providing additional funds will be attached to the contract.

Hourly Rate Schedule

	Eugene A. Hickok and Associates
Senior Advisor	$78.00
Team Leader (Senior Chemist)	$46.00
Engineer (Senior Scientist)	$36.00
Technician	$30.00
Clerical	$17.00

2. (When applicable) Payments are to be made from federal funds obtained by the State through Title I of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Public Law 96-510 U.S. code 42USC9601) and through Title I of the Resource Conservation Recovery Act of 1976 (Public Law PL94-580 U.S. code 42USC6901 and amendments thereto).

XII. Other Provisions Continued.

D. Upon request the State shall provide copies of all reports, documents, test data and other information it possesses, which pertain to this project.

E. Contractor recognizes that work performed under this contract and other remedial measures which may be undertaken concerning soil and ground water contamination from the former Reilly Tar site are the subject of pending litigation by several governmental agencies against the Reilly Tar and Chemical Corporation. Contractor also recognizes that it, its employees, subcontractors, and agents may be called upon to testify as to the work performed under this contract. Contractor agrees to advise employees, subcontractors, and agents working on this contract of the information contained in Section XII.

ST. LOUIS PARK WELL ABANDONMENT PROGRAM

Task I.A. - Well W23
Drilling Costs

1.	Mobilization and demobilization	$ 1,000
2.	Install pump	500
3.	Test pump, 24 hrs. @ $75/hr.	1,800
4.	Install grout plug	500
5.	Install NW casing, 590' @ $6/ft.	3,540
6.	Weld 10-inch - 4-inch casings at top	100
7.	Install BW rod	500
8.	Core, 590' to 920', 330 ft. @ $100/ft.	33,000
9.	Remove BW rod and NW casing	1,000
10.	Install pump	500
11.	Test pump, 24 hrs. @ $75/hr.	1,800
		$44,240

Task I.A. - Well W23
Other Costs

1.	Field geologist	173 hours @ 36/hr.	6,228
2.	Hazardous waste disposal	8 drums @ $200/ea.	1,600
3.	Preparation for plans and specifications for reconstruction at monitoring well	40 hrs $48/hr.	1,920
4.	Laboratory analyses	27 samples @ $300/ea.	8,100
5.	Cyclone fence around hazardous waste		1,000
6.	Interaction with State and City	10 hrs @ $78/hr.	780
		Sub total - engineer costs only	$ 8,928
			$19,628
		Drilling and other costs total	$63,868

ST. LOUIS PARK WELL ABANDONMENT PROGRAM

Task 1.B.
Disposal of Hazardous Waste

Costs for hazardous waste disposal are contained in costs for Tasks 1.A., 1.C. and 1.D ($5,000).

Task I.C. - Well 105
Drilling Costs

Worst Case

1.	Mobilization and demobilization	$ 1,000
2.	Core, 950 ft. @ $60/ft.	57,000
3.	Install packers	1,500
4.	Install pump	500
5.	Test pump, 2 hrs. @ $75/hr.	150
6.	Remove pump	500
7.	Install pump	500
8.	Test pump, 2 hrs. @ $75/hr.	150
9.	Remove pump	500
10.	Install pump	500
11.	Test pump, 2 hrs. @ $75/hr.	150
12.	Remove pump	500
13.	Install pump	500
14.	Test pump, 2 hrs. @ $75/hr.	150
15.	Remove pump	500
		$64,100

Best Case

1.	Mobilization and demobilization	$ 1,000
2.	Core, 200 ft. @ $30/ft.	6,000
3.	Rotary, 750 ft. @ $30/ft.	22,500
4.	Install packers	1,500
5.	Install pump, test pump and remove pump, 4 @ $1,150	4,600
		$35,600

ST. LOUIS PARK WELL ABANDONMENT PROGRAM

Task I.C. - Well 105
Other Costs

1.	Field geologist	120 hrs. @ $36/hr.	$4,320
2.	Lab analysis	20 samples @ $300/ea.	6,000
3.	Hazardous waste	8 drums @ $200/ea.	1,600
4.	Interaction with State and City and overall project overview	60 hrs. @ $78/hr.	4,680
		Sub total - engineering only	$9,000
			$16,600
		Drilling and other costs total	$52,200 - $80,700

Task I.D. - Test Well W300
Drilling Costs

1.	Mobilization and demobilization	$ 4,000
2.	Split-spoon drift samples, 70' @ $10/ft.	700
3.	Drive 16-inch casing, 70' @ $80/ft.	5,600
4.	Drill 16-inch hole, 30' @ $40/ft.	1,200
5.	F & I 10-inch casing, 100' @ $12/ft.	1,200
6.	F & I 5-inch casing, 100' @ $7/ft.	700
7.	Drive 5-inch casing, 160' @ $25/ft.	4,000
8.	Core P du C-J formation, 200' @ $30/ft.	6,000
9.	Install packer	500
10.	Install pump	500
11.	Test pump, 24 hrs. @ $75/hr.	1,800
12.	Remove pump	500
13.	Grout Jordan	1,000
14.	Install pump	500
15.	Test pump P du C, 24 hrs. @ $75/hr.	1,800
16.	Remove pump	500
17.	Install perm. sub. pump and disch. line	5,000
		$35,500

ST. LOUIS PARK WELL ABANDONMENT PROGRAM

Task I.D. - Test Well W300
Other Costs

1.	Field geologist	227 hrs. @ $36/hr.	$ 8,172
2.	Lab analysis	26 samples @ $300/ea.	7,800
3.	Hazardous waste	9 barrels @ $200/ea.	1,800
4.	Preparation of plans and specifications for well abandonment on use as a monitoring well	40 hrs. @ $48/hr.	1,920
5.	Interaction with State and City and overall project overview	60 hrs. @ $78/hr.	4,680
		Sub total - engineering only	$14,772
			$24,372
		Drilling and other costs total	$59,872

Task II.
Search and Inventory

1.	Door-to-door survey	30 hrs. @ $30/hr.	$ 9,600
2.	Compilation	40 hrs. @ $48/hr.	1,920
3.	Development of comprehensive well abandonment program	70 hrs. @ $78/hr.	5,460
4.	Final report	40 hrs. @ $78/hr.	3,120
		Total	$20,100

COST SUMMARY

Engineering fees	$52,800
Laboratory fees	$21,900
Hazardous waste disposal fees	$ 6,000
Drilling costs for W23, W105 and W23B	$115,340 - $143,840
Task 1.A. - W23	$63,868
Task 1.B. - Costs contained in Tasks 1.A., 1.C. and 1.D.	($5,000)
Task 1.C. - W105	$52,200 - $80,700
Task 1.D. - W300	$59,872
Task II	$20,100
Grand Total	$196,040 - $224,540